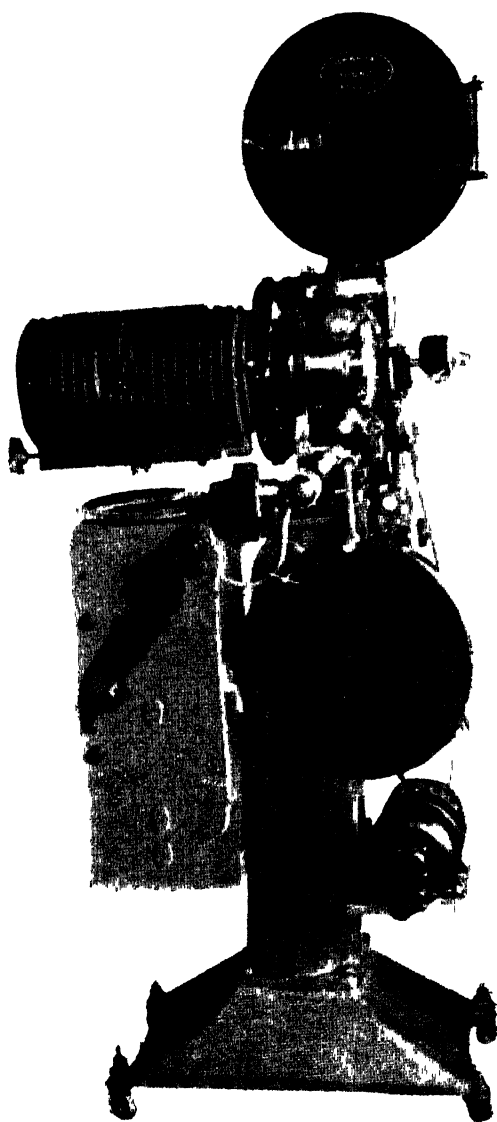




IMPERIAL SOUND EQUIPMENT AND PARTS

C 15022

Manufacturers of Complete
**Talking Picture Apparatus
throughout, from the Raw
Material to the Finished
Sound Installations**



Rs 5,200/-

COMPLETE IMPERIAL STANDARD TALKIE PROJECTOR

*with Mirror Arc Lamp, Speaker, Non-Sync., Motor,
Lens, and mechanism complete as illustrated*

FORWARD.

The sole purpose in producing the whole of our equipment ourselves is to make it as self contained as possible for the following reasons Perfect sound and projection at an **ADVANTAGEOUS PRICE** without fear of **COMPETITION**. This can only be achieved by producing all parts ourselves, thereby cutting out miscellaneous profits. Progress in design can only be achieved by this method of production, due to the complications of distinct branches of industry, i.e. the Engineering, Electrical, & the comparatively new Radio Trade.

After carefully perusing this leaflet, we feel confident that you will agree with us that distinct progress has been made in design, quality of reproduction, saving of valuable space, elimination of unnecessary parts and complications, saving of time on installing, and selling at a **REASONABLE PRICE**.

Silent Pictures are now a thing of past, so there is no justification in the continued manufacture of Silent Projectors. Sacrifices in the design of these have to be made in order that different Soundheads can be adopted and similarly the manufacturers of Soundheads alone have to make sacrifices in order that these may be adoptable to existing Projectors. Sacrifices of these natures lead both to inefficiency and greater cost and it has been left to us to be the first firm, not only to manufacture the Projector and Soundhead complete in one mechanism, but to manufacture the whole equipment completely through out at our works. The result is perfect sound and Projection at an economical price.

The Projector and Soundhead are built as a whole with separate Gear Box Mechanism, which, running completely in oil, gives long life and smooth silent running. The whole mechanism is original in design, numerous improvements being incorporated, which tend to place it far ahead of any competitor on the market at the present time.

The Projector occupies very little floor space, and being mechanically compact, facilitates threading up and the removal of worn-out parts. Once installed it should last a life-time, with very few renewals being required, as only the best raw material obtainable is used and the most skilled workmanship allowed in its manufacture.

SPECIFICATION :



Soundhead and Projector combined in one unit.

Rear Shutter—50% less heat on the film and condenser, shaped as a fan to draw heat from the lamphouse and several other advantages that are self-apparent.

Safety Shutter that cannot fail to operate when projector is stationary, working on a governor principal, it relies for its action on the speed of the projector.

All Main Bearings and Gears are run in an oil bath which, having an inspection window, shows at a glance the oil level

The Maltese Cross is of special steel, turned and cut from the bar, after which it is finished to a fine degree of accuracy by a special process.

Self-locking sprockets skids when on the off position. Fixed optical centre.

Adjustable tension on aperture film skates.

Positive drive with adjustable clutch action for bottom spool box drive

All wearing parts being standardized, are easily interchangeable.

Driven Soundhead with sound sprocket balanced by a heavy fly wheel and isolated by a spring filter from the main gearing, eliminates all trace of ripple.

Sound Track, adjustable when running.

Exciter Lamp, easily accessible and adjustable.

Optical Unit made to our design and manufactured to our requirements by Messrs. Taylor Taylor, & Hobson, Ltd.

All castings are stove-enamelled. Exposed metal parts chromiumplated or oxidised finished and will retain a new appearance for years.

Lantern House is of cast Aluminium and ribbed to dispel the heat. Hinged doors with ruby windows are both sides for viewing carbons.

Mirror Arc mechanism is of our own special design, with only one knob control for carbons, each can be adjusted separately or together. 25% more light from the same current consumption is obtained by burning the carbons at an angle, by this means the whole of the positive light crater is focussed on the mirror. The Mirror Holder is provided with two small knobs for tilting and side movements.

The Pedestal Stand is of cast-iron with corner adjustments for placing on uneven floors. An adjustable screw knob is provided on the stand for lining the Projector Mechanism with the Screen.

The Motor is of $\frac{1}{2}$ B. H. P. and is adjustable for tension of the endless V belt by means of the movable motor bracket, also tension pulley device, keeping the belt tension when running. Hanging on the back of the Pedestal Stand is the All Mains Amplifier, having the following specification.

The Amplifier Case is built of cast Aluminium Trays and Sheets, approx 3/16ths" in thickness, assembled and bolted together in unit form and are easily dismantled if required.

The Standard and Portable Types are identical in circuit arrangements and parts, all parts are worked at 50% below rated value. Transformers, chokes etc., are manufactured throughout at our works in order to comply to our usual standards of material and workmanship.

All important resistances are wire wound and easily changed. All Valves are decoupled to stop self-oscillation and no expense has been spared to ensure reliability, as we realise that should any faults develop when in use, great financial loss to the cinema may result, in addition to loss of prestige. Like all Imperial products, these are dependable on all occasions, and providing a spare valve is kept at hand, no other precautions should be necessary.

The Amplifier is absolutely complete for sound on film reproducing, and contains the head amplifier, H.T. voltage for Photo cells, excitation, sensitivity matching arrangements for two photo cells, exciter lamp supply, (15 amps. at 10 volts), 4 stages, separate valve H.T. rectifier for first 3 stages, 2 valve H.T. rectifier for output valves, H.T. rectifier for loud speaker field. Complete with high class milliammeter, wire wound Monitor and Main Volume controls, switches, etc. Non sync, complete with electric motor and B.T.H. Senior Pick up, change over switch, etc., the whole making a compact arrangement for incidental music when required. This amplifier can also be used for relaying or for public address work without any additions beyond a microphone and transformer.

The Imperial Amplifier can be classed as a universal Amplifier suitable for all needs and conditions which no other make can offer. Sturdily built by a firm whose whole business has been built on sound principles.

Approx. speech output 12 watts.

Imperial Cinema Loud-Speakers

are built to conform to the following specification —

Finest possible reproduction. Sensitivity.

Capable of handling large inputs. 25 Speech Watts, if necessary.

Rigid suspension and improved centring of Speech Coil.

All parts standardised and easily inter changeable in case of mishap.

14 Cone, 12 Ohms impedance, Speech Coil. Can be supplied with 6, 12 or 200 volt field Coils, or, can be supplied to any voltage required. Approx. 20 Watts consumption.

Standardised with one impedance Speech Coil only to save mistakes and complications. Variations for different output Valves are provided for in the primary of the Speech Coil Transformer if specified.

Having a good base response and brilliancy in tones leaves nothing to be desired. Without any possible doubt the finest Loud Speaker on the market irrespective

IMPERIAL

PORTABLE SOUND PROJECTOR

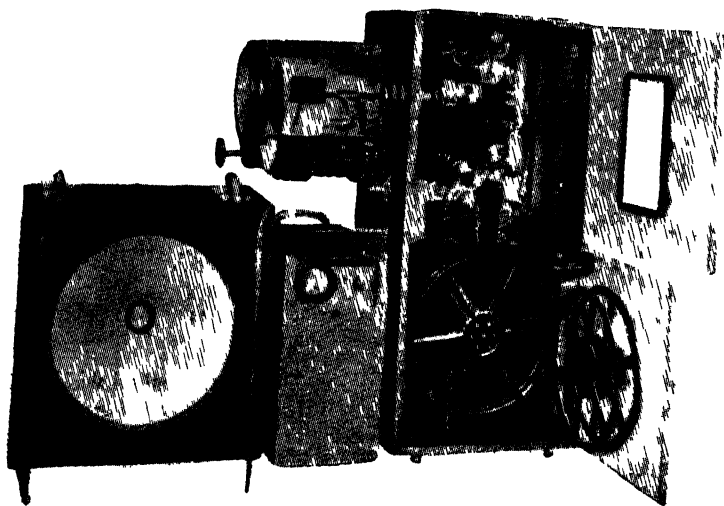
Few special instructions are needed in regard to this outfit, which is substantially similar to that already dealt with.

For threading, the spool of film is placed on the spindle on the lower door. The film is led between lower rollers, up the chute and over the two top rollers, through the projector and to the take-up spool.

When a gas-filled lamp is supplied instead of an arc lamp, the lamp should be focussed as follows: remove the projection lens, and swing the mirror so that the reflected image will not reach the aperture. Focus the image of the lamp filaments upon the screen by means of the condenser, centring the image so that it nearly fills the screen. Then adjust the mirror so that the reflected image of the filaments is seen between the original image. Replace the projection lens, when the screen should be evenly illuminated. If much further adjustment is needed, it indicates that the condensers are of the wrong focus for the projection lens.

When it is required to run the arc lamp on alternating current, a $1\frac{1}{2}$ K.W. transformer can be incorporated in the projector case.

The portable amplifier is similar to the standard type, but more compact. Like the standard type, it is constructed to run on 200 to 240v. 50 cycles A.C., and it embodies similar arrangements for supplying the photo-cell exciting voltage and speaker fields.



Showing complete equipment exposed with Mirror Arc and Lamp-house and mechanism. 12 Speech watt all mains Amplifier and Loud-Speaker fitted into a directional baffle case.

A SIMPLIFIED SOUND PROJECTOR.

Imperial's Model for the Small Exhibitor

It has for years been my contention that the construction of the projector head and sound head as separate units would eventually cease, the two being merged into one piece of apparatus. The advantages of such a construction are obvious, both in regard to cost of manufacture and simplicity of functioning and operating.

From the point of view of the manufacturer, either of the projector mechanism of the sound equipment, there are no less obvious disadvantages to such an arrangement, but of a commercial nature. I am, however, glad to find that one progressive firm should share my views, the firm in question being Imperial, of Leicester, who, under the practical management of Mr. Mynard, have for years past made sound equipment of consistently high quality, much of which has been sold by various firms under different names.

For Small Exhibitors

This new machine of Imperial's is not intended to enter into competition with the high-priced projectors and sound systems, but is specifically intended for the small exhibitor, whose throw, current supply, size of projection room, and purse are all equally limited. I cannot conceive it possible that a more compact machine could be constructed without sacrificing some essential feature.

The construction of the combined sound and projector head is simplicity itself. The main casting forms two oil-baths, in which runs all the gearing. The upper oil-bath contains the top sprocket and shutter drives, in the lower are the intermittent motion, bottom sprocket and sound sprocket drives, the two sets of gearing being connected by a vertical shaft, an extension of which drives the take-up shaft.

The two oil-baths have separate filling plugs and oil level indicators, while thorough circulation of the oil is ensured by the rotation of the gears.

The whole of this main casting slides for racking upon two vertical rods, adjustment being effected by a handle placed at the front of the machine.

On the operating side, the film passes from the top sprocket, through the gate and over the intermittent sprocket, then over a friction sprocket, which effectively smooths out vibration from the intermittent loop. From this friction sprocket the film passes over the drum containing the photocell, and thence to the sound sprocket, the shaft of which carries a heavy flywheel driven from the gearing through a simple form of spring buffer.

Specially Designed Optical System

The light from the exciting lamp, which is carried in a small lamphouse behind this drum, is focussed through a small optical system specially made by Taylor, Taylor and Hobson, upon the sound track.

From the sound sprocket, the film forms a loop before reaching the take up sprocket, and runs from there to the take-up box. The gate is of sturdy construction, pressure being applied by adjustable spiral springs equalised over the two runners. In place of rollers, every sprocket is fitted with a steel shoe, which, no doubt, has the merit of enduring far more neglect than a roller.

The modern rear shutter is embodied, behind which is a simple form of cut off for changing over. The auto-shutter is carried in a compartment behind the gate, and is worked by means of steel weights, which under centrifugal force, grip the inside of a phosphor-bronze drum, this device is carried on a low-speed shaft, so that wear is negligible.

Mechanical Efficiency

Mechanically, the machine is throughout well made and of excellent materials, cast steel being used lavishly. Every bearing is provided with a phosphor-bronze bush, and, in the case of the sprocket bearings, where it is essential that oil should be retained, and not reach the film, the shafts have formed on them small helical oil-grooves, the direction of which causes the oil to be always fed back into the bearing.

As regards the intermittent motion, the Maltese cross is, in my opinion, a little on the small side. It is true, as Mr. Mynard pointed out, that a small cross has less distance to travel at each picture shift, but, on the other hand, such a small cross needs to be made to a proportionately higher degree of accuracy, and is subjected to more wear.

It is, however, made of cast steel, turned solid with its shaft, and engages with a hardened and ground steel cam, the striking pin being supported either side by a heavy steel plate

An Unusual Feature

As will be noticed from the illustration, the illumination is of unusual construction. It consists of a mirror arc, which can be fitted either with a 5½ in. or an 8 in. mirror, the two carbons being fed from a single knob, longitudinal movement of which in either direction enables one carbon or the other to be separately fed.

The negative carbon is placed almost in a vertical position, enabling the mirror to be made without a hole. The light is then focussed through a long-focus condenser on to the film, the condenser serving both to cool the beam and to produce a more even field of light.

The most striking feature of the lamp is perhaps, its tiny lamphouse, which is built up of heavy aluminium castings, with wide fins for heat radiation. The size of it would obviously be quite inadequate, were it not for the fact that fan blades formed on the shutter force a current of air right through the lamphouse, which air is not allowed to impinge on the film, thanks to the condenser.

The motor, which has been standardised for driving this machine, is the Crompton Parkinson, the drive being taken by jointless belt, over a jockey pulley, direct to the flywheel on the camshaft. The stand is heavily built, allowing of a considerable angle of projection take.

The amplifier, forming part of the sound equipment, is mounted in a cast case, and, of course, provides for all-mains operation. The non-sync. turntable is conveniently fitted on top of this amplifier.

Amplifier Circuit

The circuit comprises for the first, second and third stages, respectively, 164-volt, 164-volt, and 104-volt valves, the power stage comprising a pair of 104-volt valves, having an undistorted speech current of 12 watts, this can be worked at an average hall up to 700 or 800 seats, but a third valve of the same type can be added if desired.

